California Water 2030:
An Efficient Future

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Summary

- What could California's water situation look like in the year 2030 – twenty-five years from now?
- Almost anything: from shortage and political conflict to sufficiency and cooperation.
- Scenario analysis can help with planning.

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Summary

- We present a “High Efficiency” scenario in which Californians maximize our ability to do the things we want, while minimizing the amount of water required to satisfy those desires.
- Under the Pacific Institute scenario, total human use of water could decline by as much as 20 percent.

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Summary

- Under the High Efficiency scenario, we assume no new technologies, the same demographic trends as DWR, and continued strong agricultural production of food and fiber.
- We assume more effective price- and non-price-driven conservation and efficiency programs, implemented statewide.

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Summary

- The PI High Efficiency scenario is not a ***prediction*** for the future, but an achievable ***possibility***.
- ***Can*** such an efficient water future be achieved? Yes.
- ***Will*** such a future be achieved? That depends on what water policies we implement.

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California Water Scenarios

- The State of California has prepared water scenarios and projections as part of long-term water planning.
- Official scenarios routinely project substantial increases in water use over time, often far in excess of the use that actually materializes.

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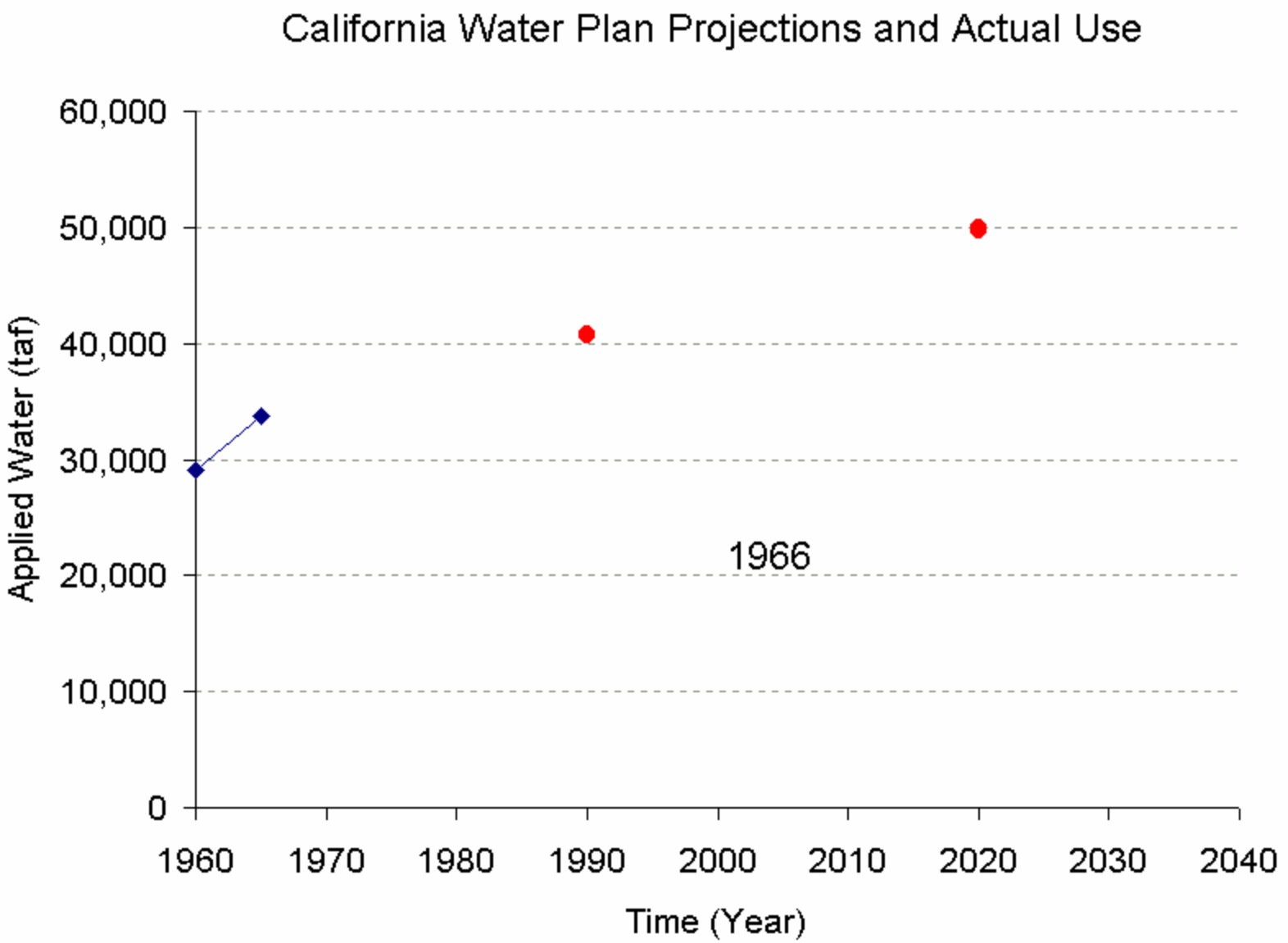

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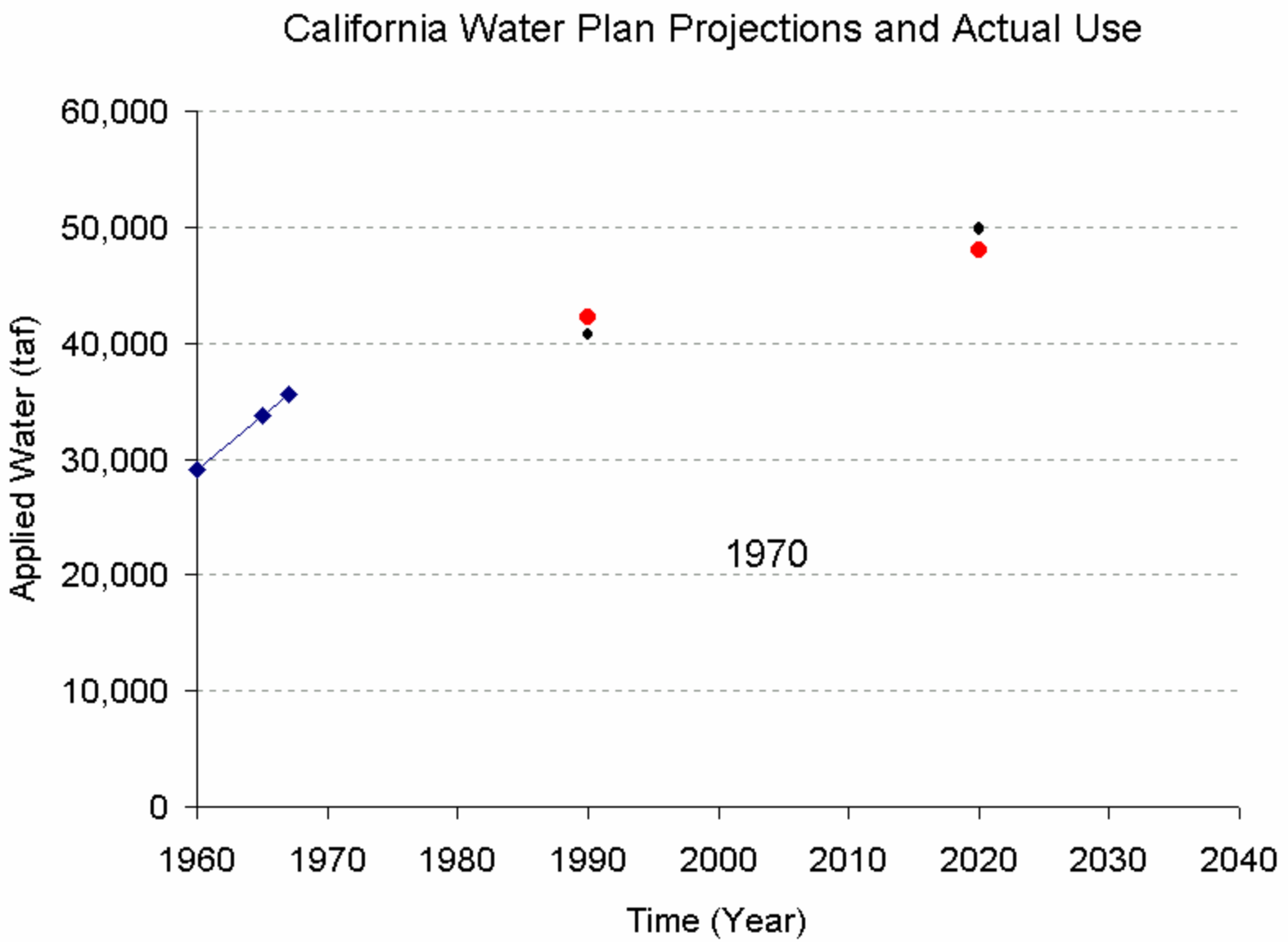

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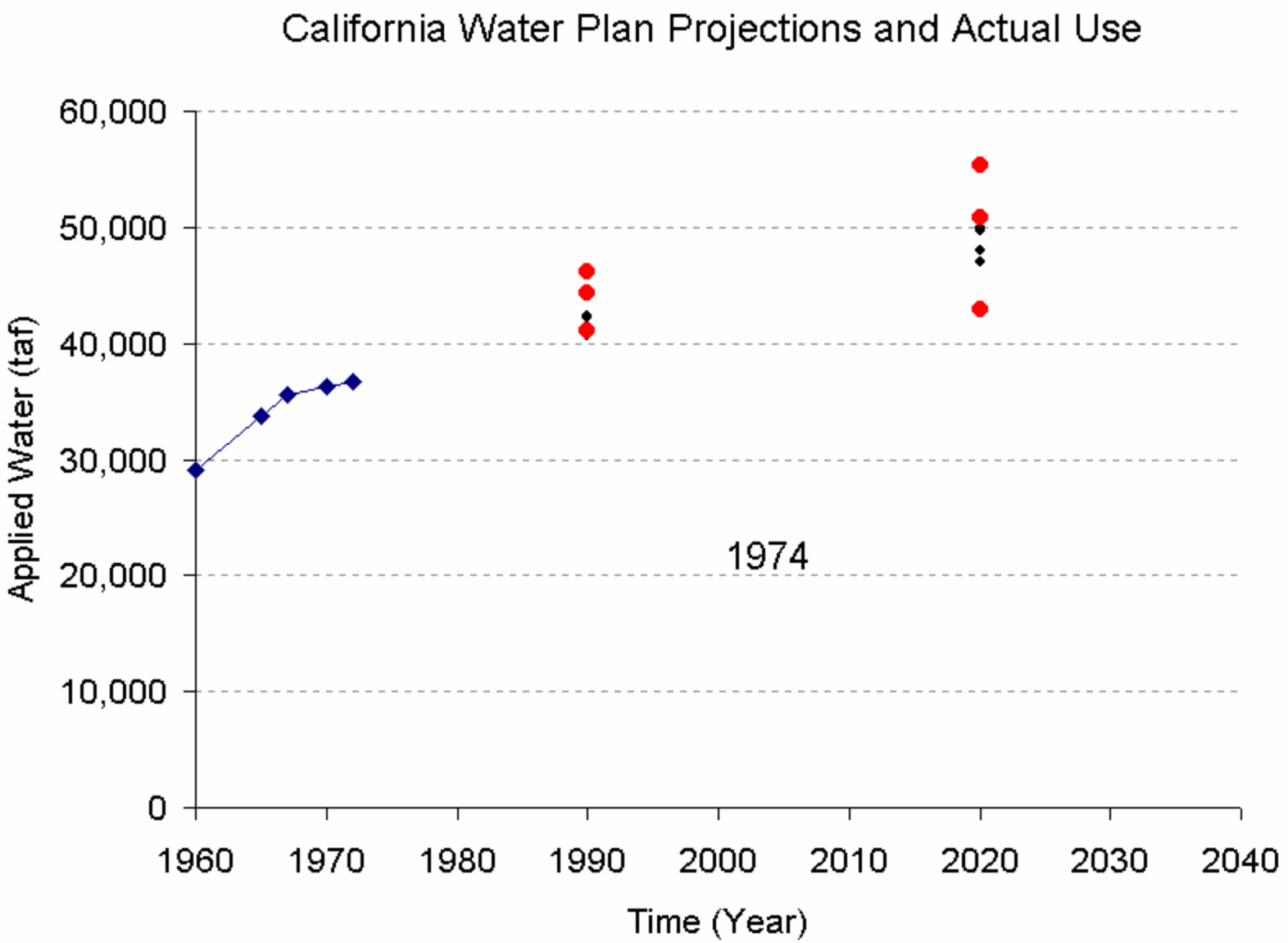

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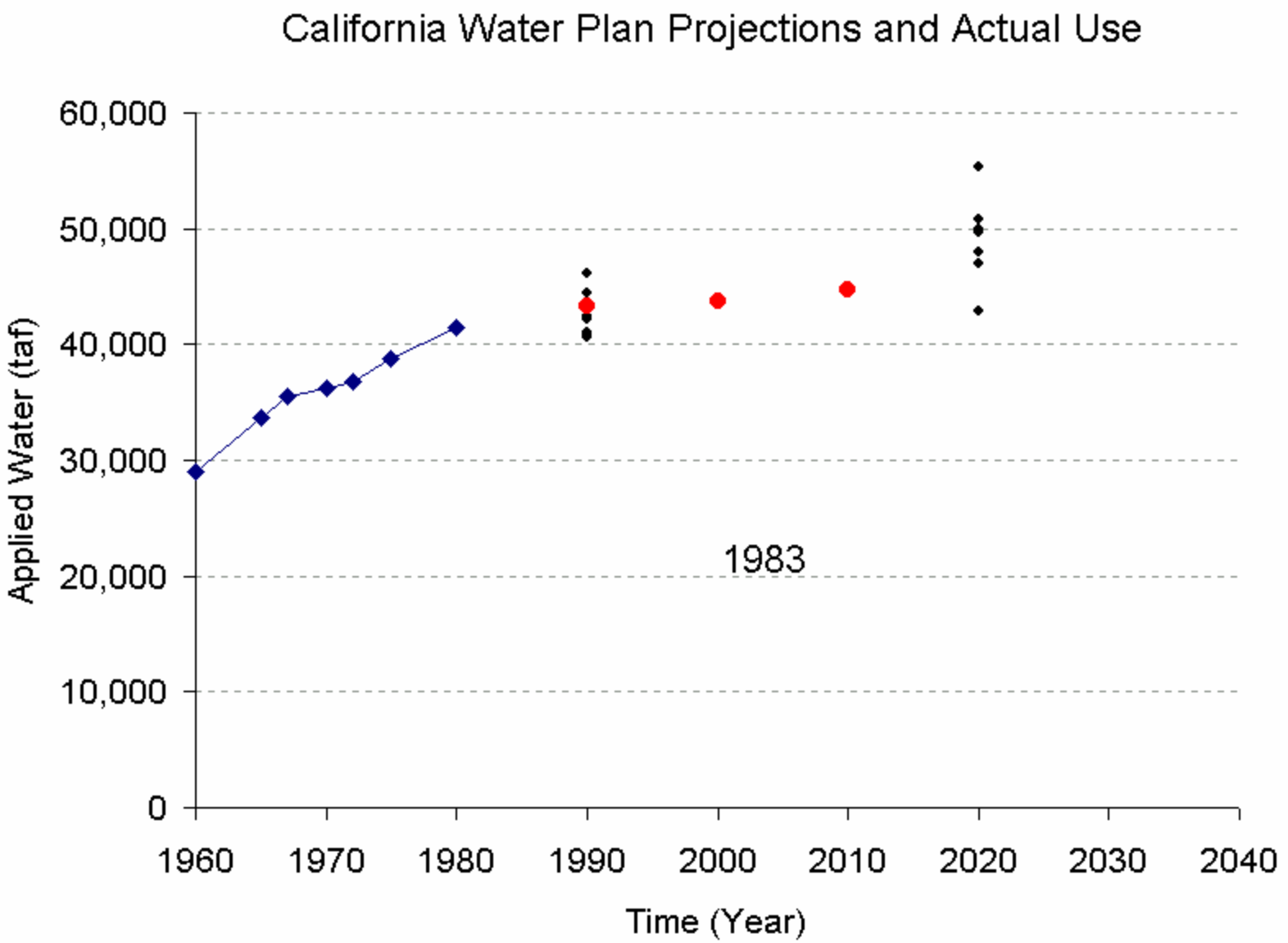

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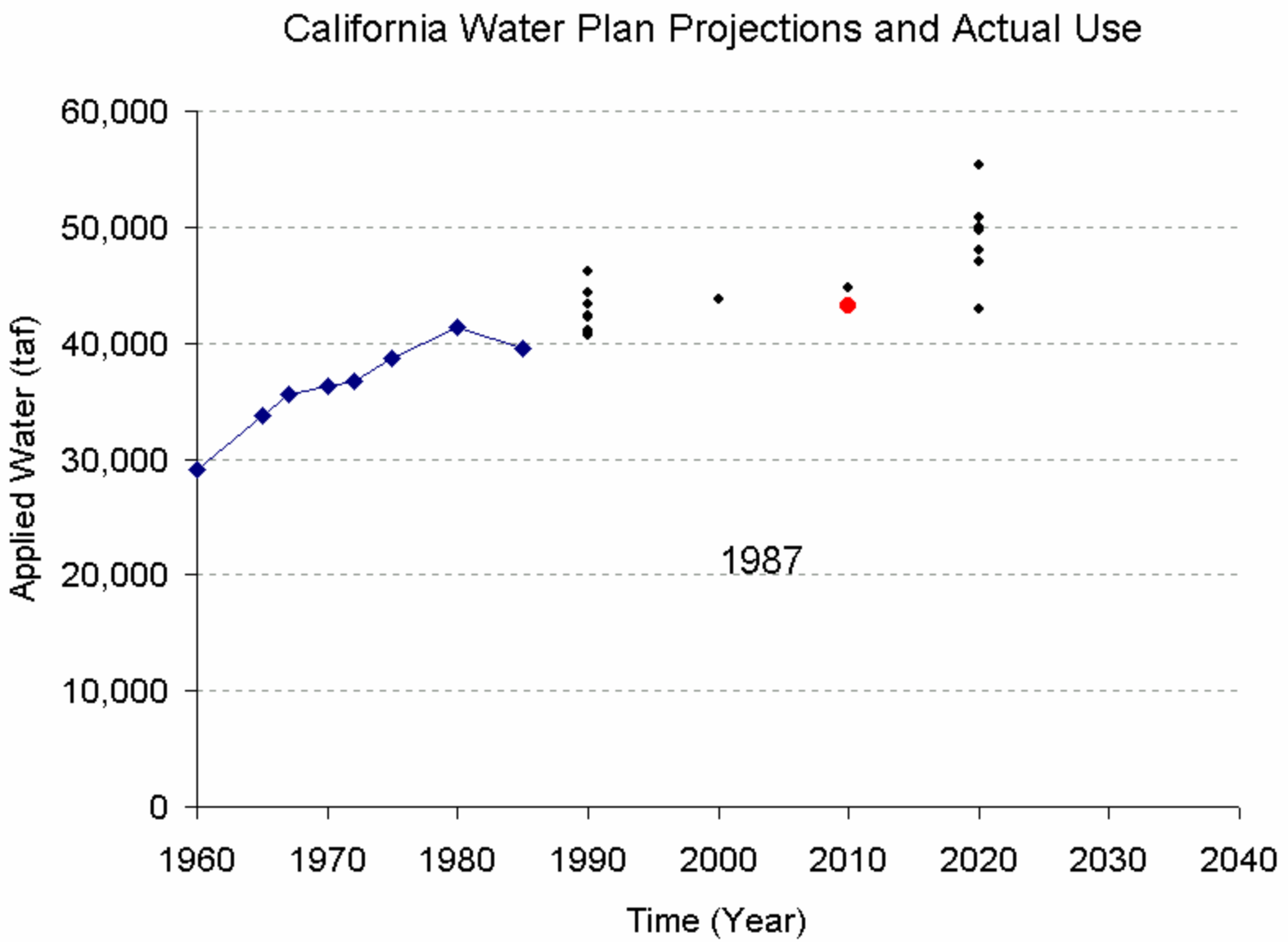

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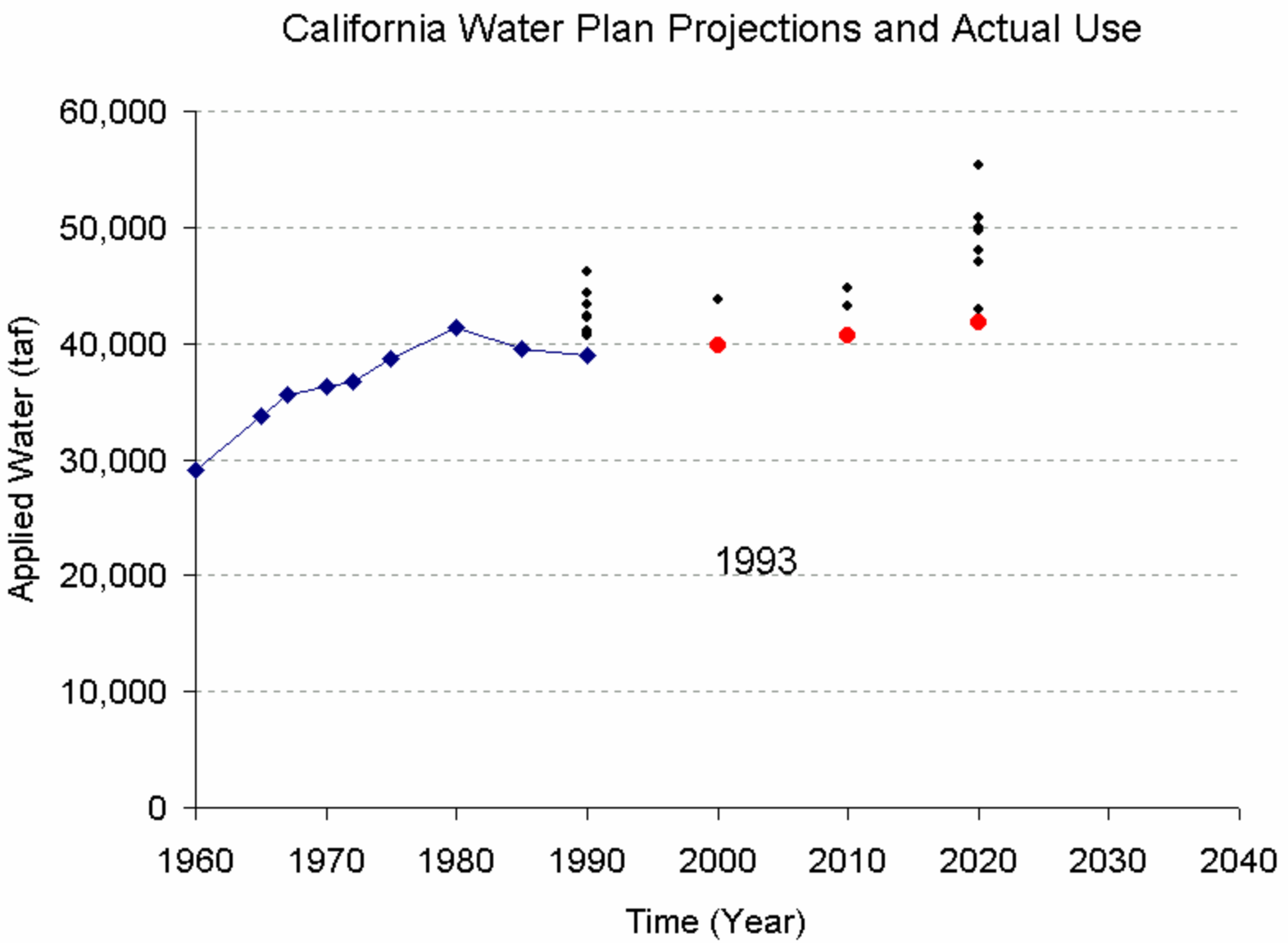

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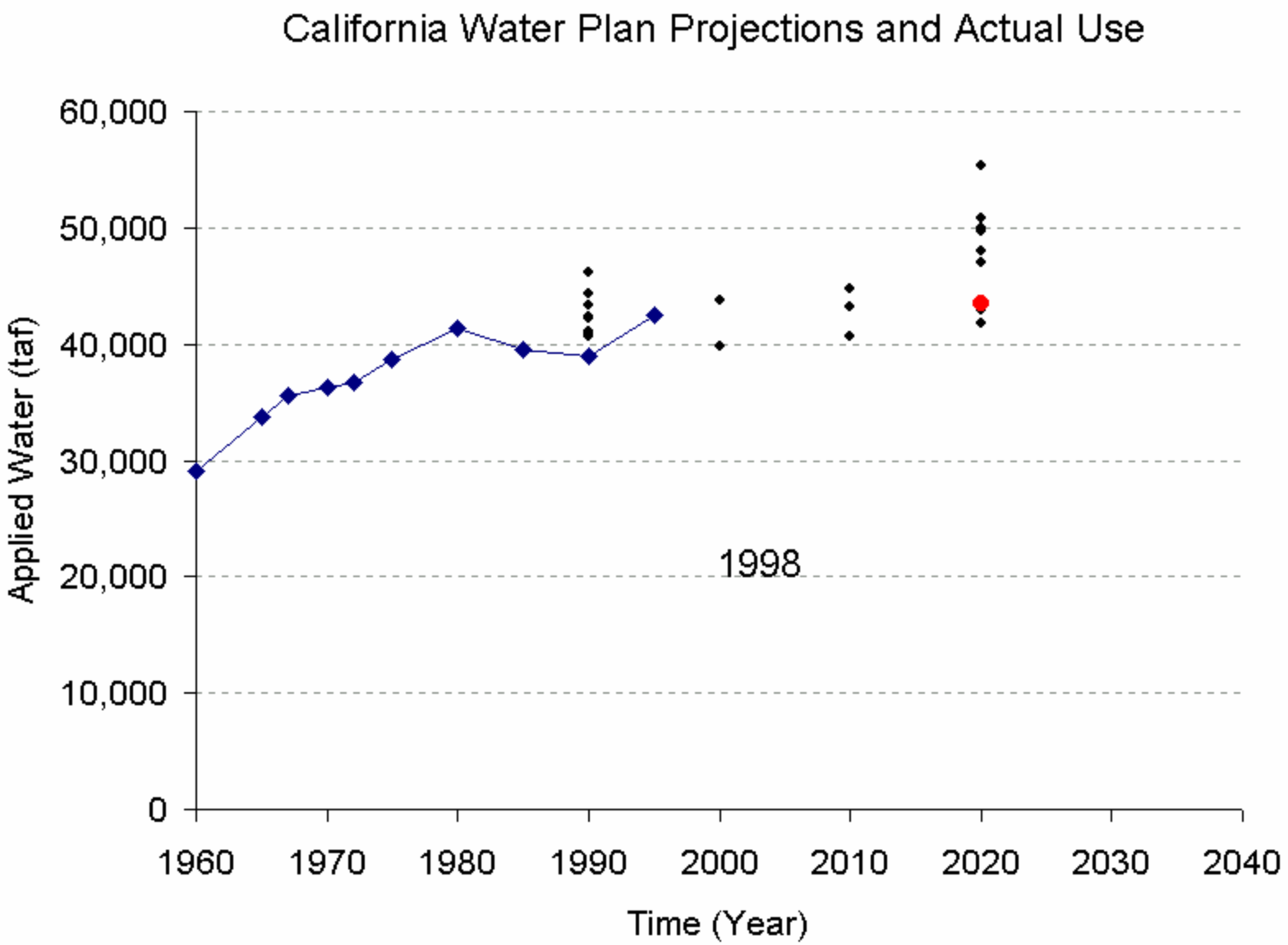

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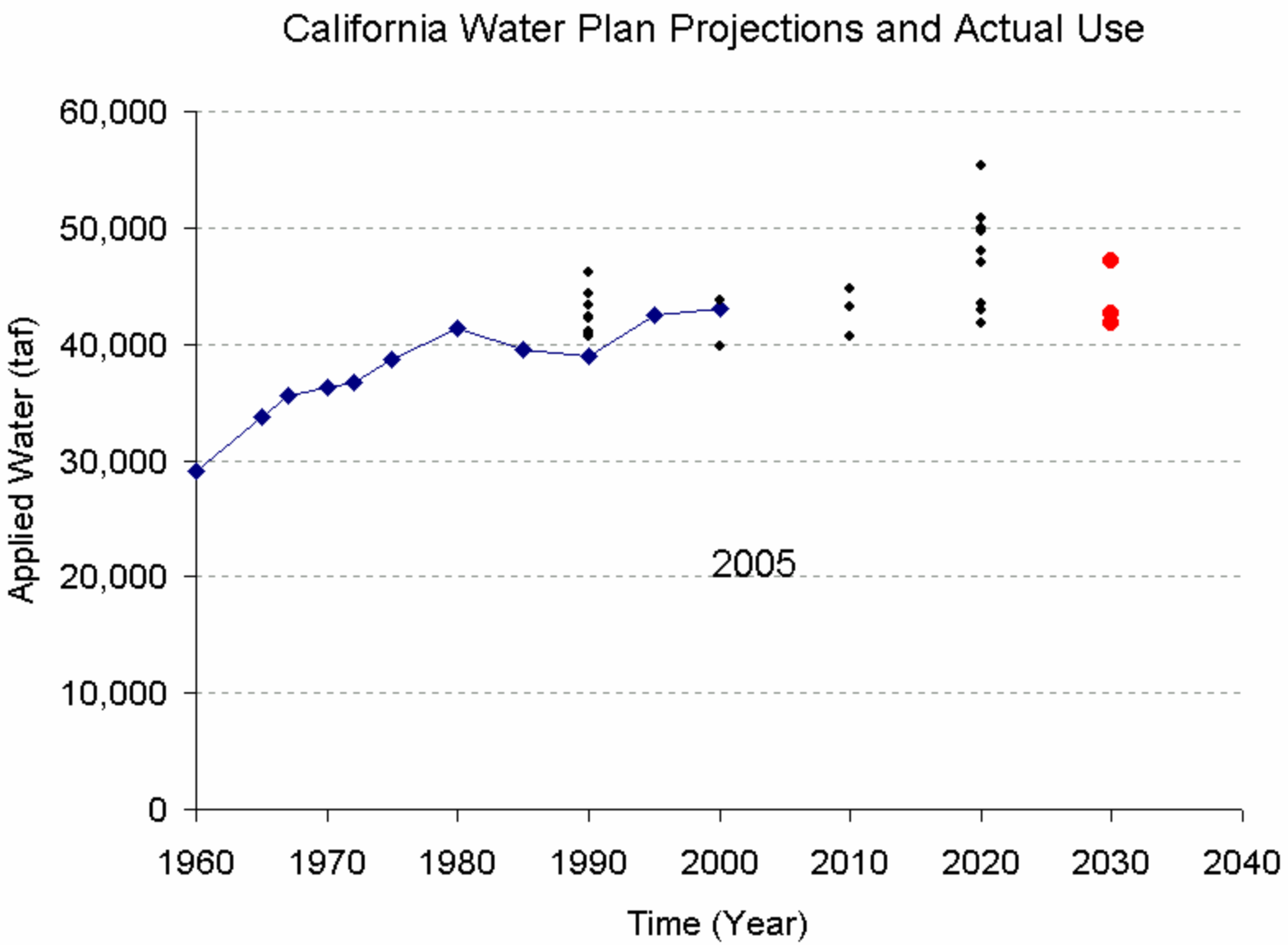

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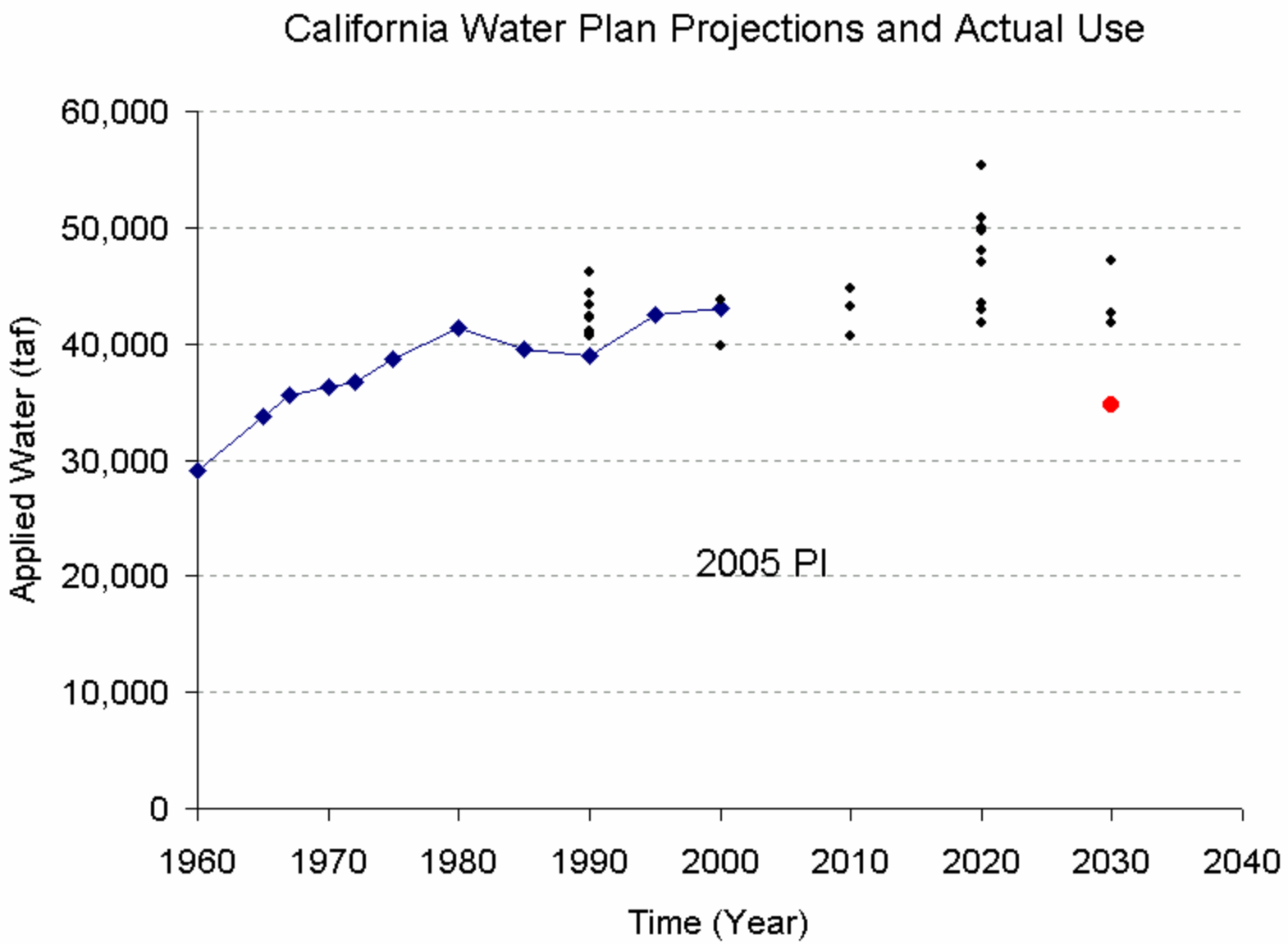

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DWR Bulletin 160-2005 Scenarios

- **Current Trends**. Water demand based on "current trends with no big surprises."
- **Less Resource Intensive**. "California is more efficient in 2030 water use than today while growing its economy within much more environmentally protective policies."
- **More Resource Intensive**. "California is highly productive in its economic sector. Environment…is not the state's first priority. Water use in this scenario is less efficient in 2030…"

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DWR Bulletin 160-2005 Scenarios

- All three DWR scenarios include modest efficiency improvements achievable with current policies and programs.
- DWR intends to evaluate various "response packages," including greater water-use efficiency efforts, for the 2010 California Water Plan.
- We believe it is critical to begin evaluating, and implementing, stronger water-conservation and efficiency programs now.

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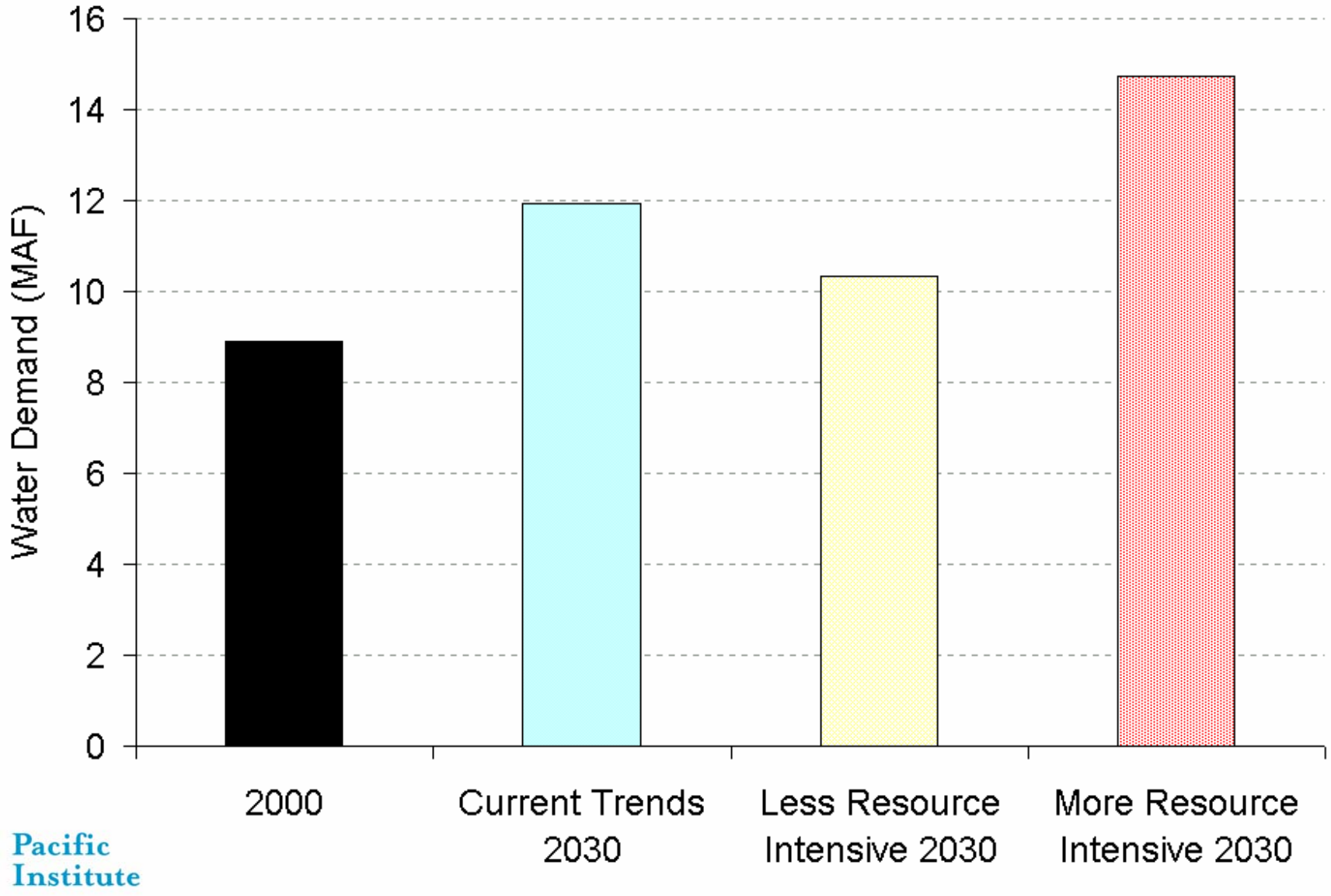
Urban Water Demand: 2000 and DWR Scenarios



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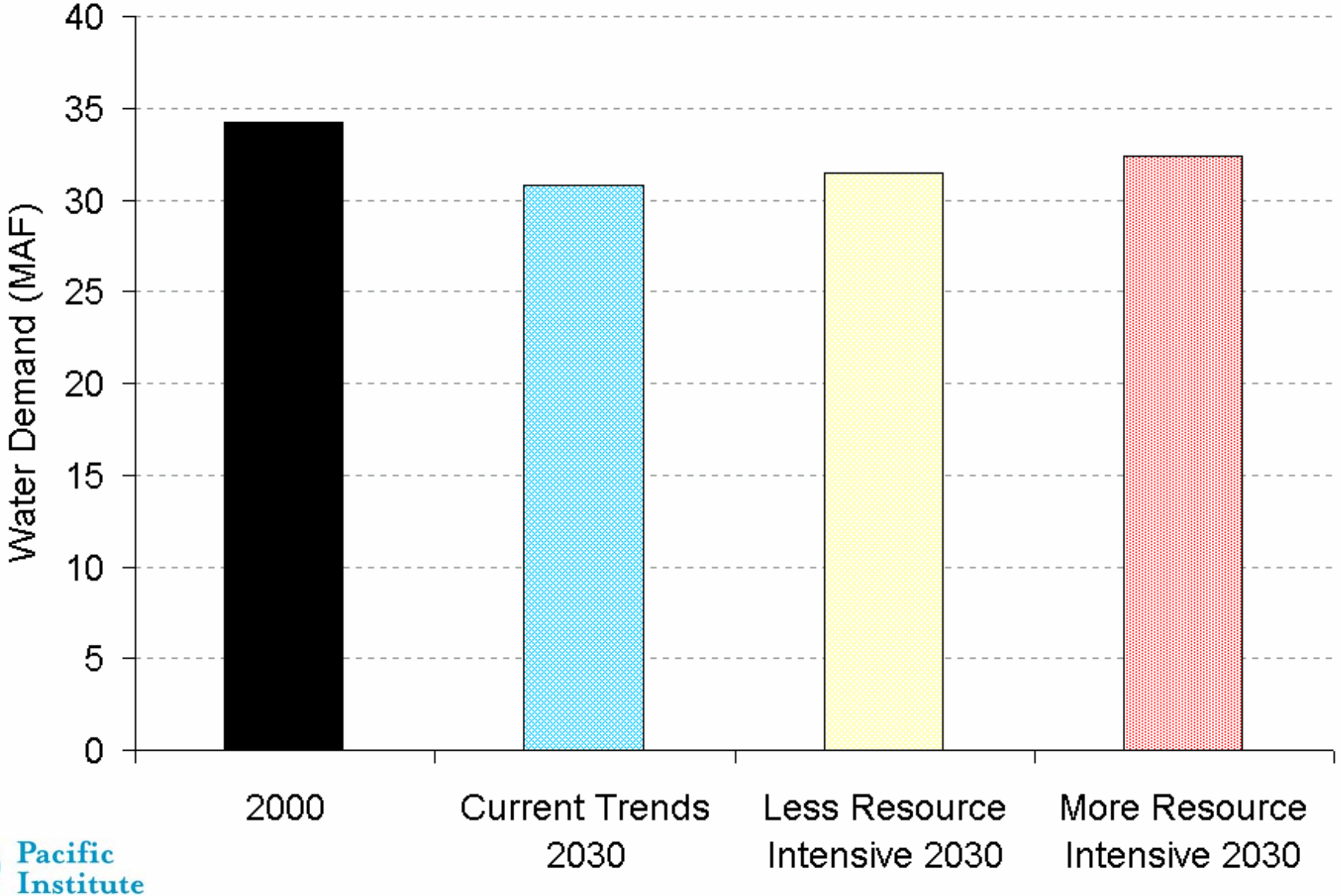
Agricultural Water Demand: 2000 and DWR Scenarios



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The Pacific Institute High Efficiency Scenario

- Produced with the same model developed by Groves et al., and used by DWR.
- Adopted the same demographic projections (population, housing distribution, agricultural land area, crop type and distribution, income projections) used by DWR.
- Changed the assumptions about the potential for price- and non-price-driven water-use efficiency improvements.

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Pacific Institute Urban Water Scenario Assumptions

- Same demographic assumptions as DWR "Current Trends"
  - Population, households, size, income, employment.
- Higher prices
  - Current Trends: 2000 +20%
  - PI High Efficiency: 2000 +41% (historical trend)
- Slightly higher price elasticities
- Pacific Institute urban efficiency potential.

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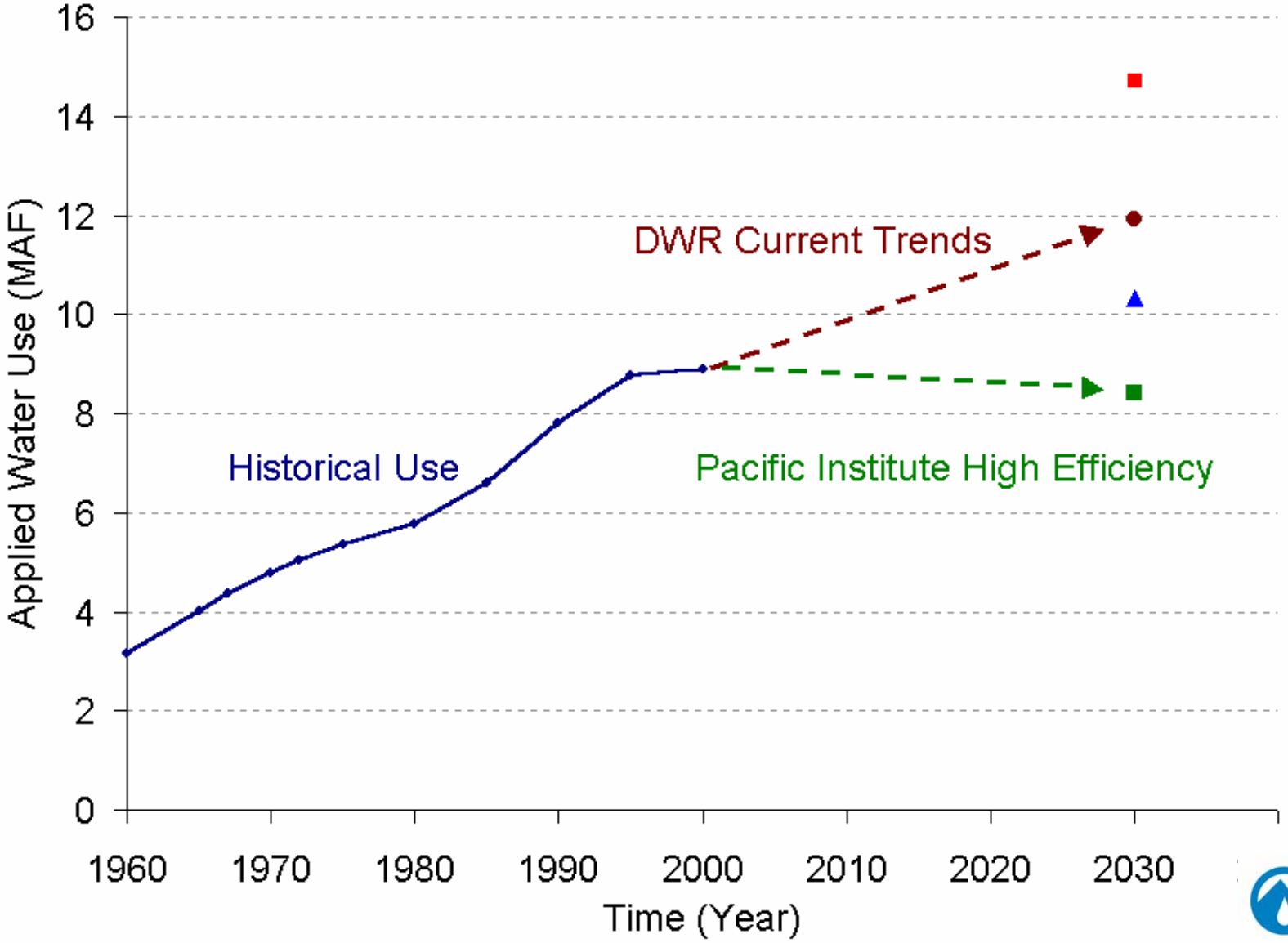
Actual and Projected California Urban Water Use



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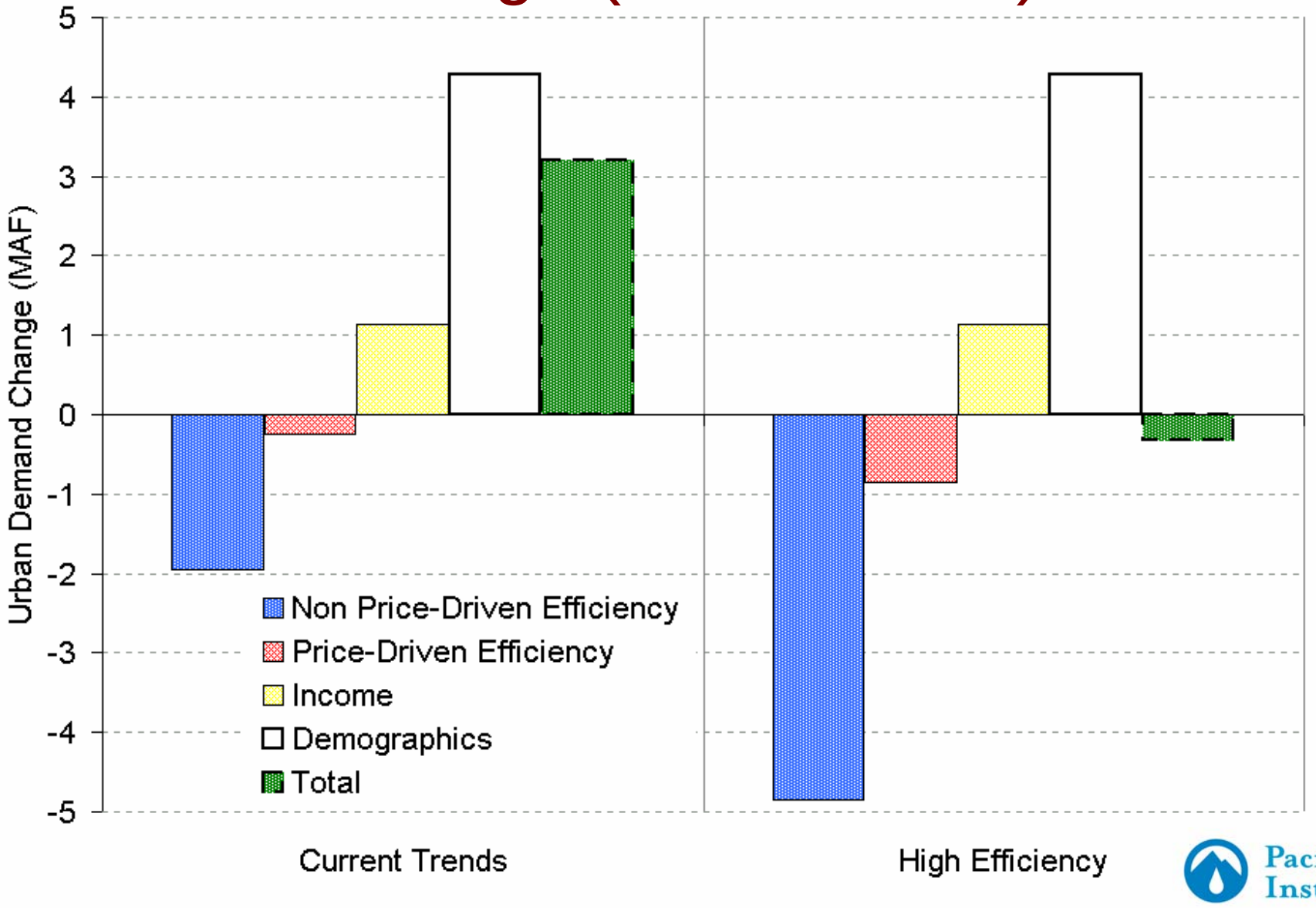
Drivers of Urban Water Demand Change (2000 - 2030)



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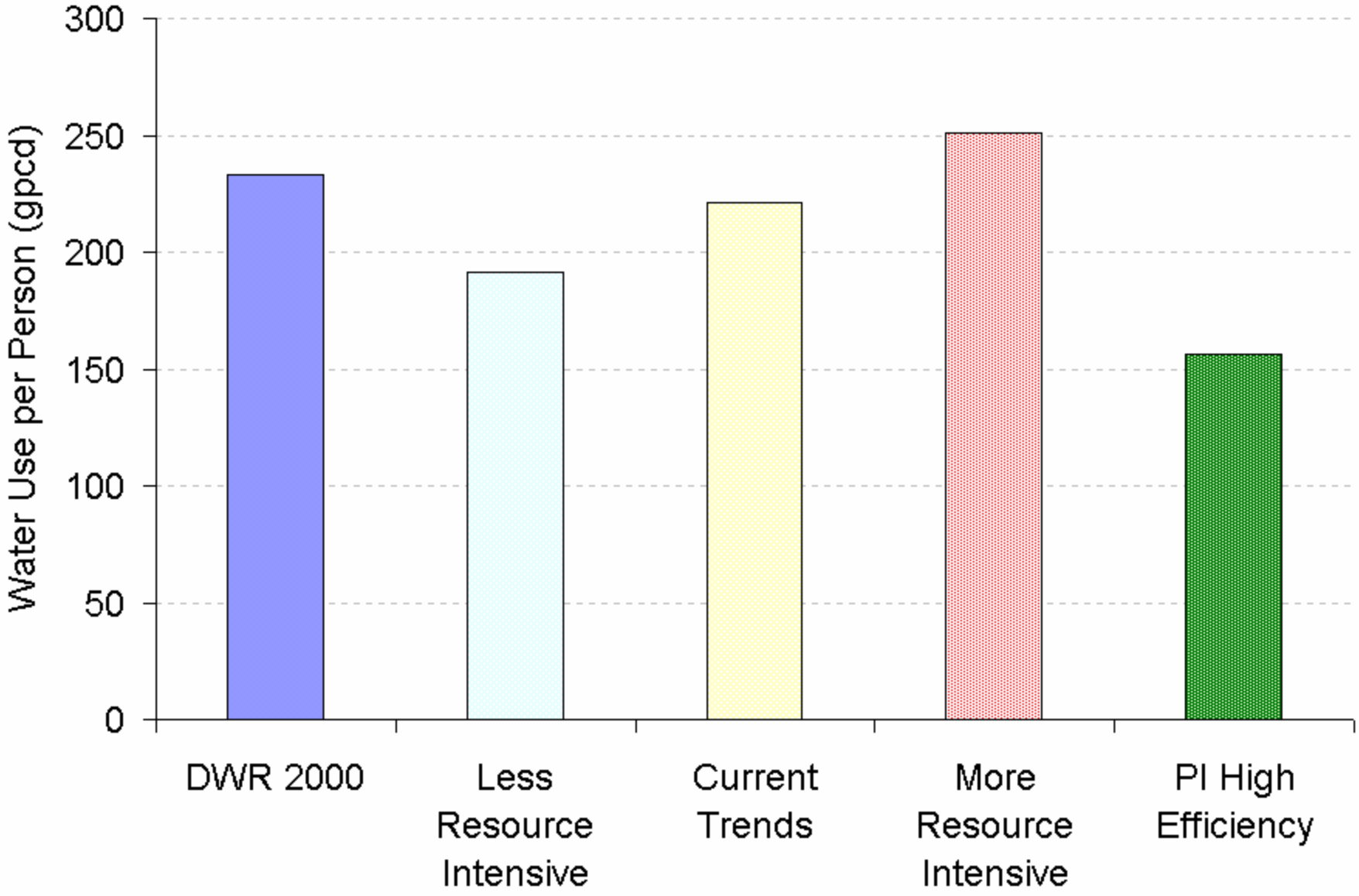
Per-Capita Urban Use: 2000 and 2030 Scenarios



Pacific Institute Agricultural Water Scenario Assumptions

- Same land use assumptions as DWR "Current Trends"
  - Irrigated crop area, irrigated land area, multi-cropped area.
- Same crop types; same crop yields; same elasticities.
- Higher prices
  - Current Trends: 2000 plus 10%
  - PI High Efficiency: 2000 plus 68% (Historical trend plus full CVP repayment)
- Historical trend in irrigation method.

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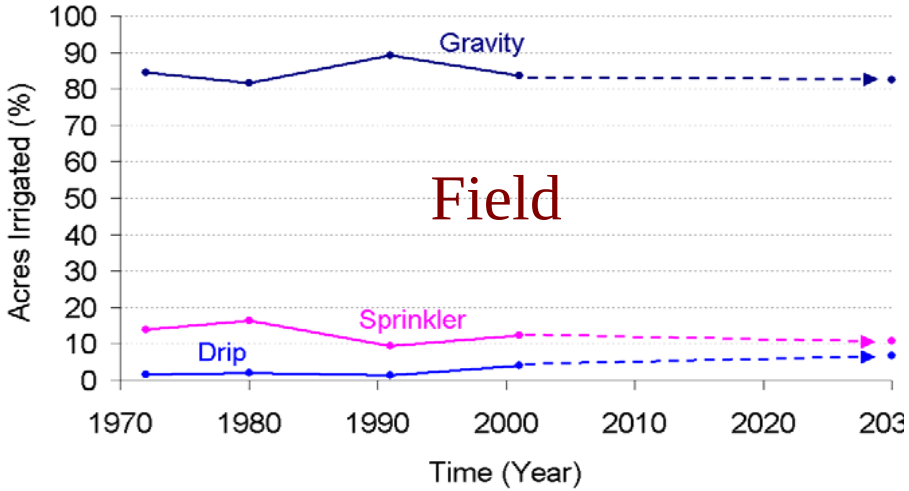
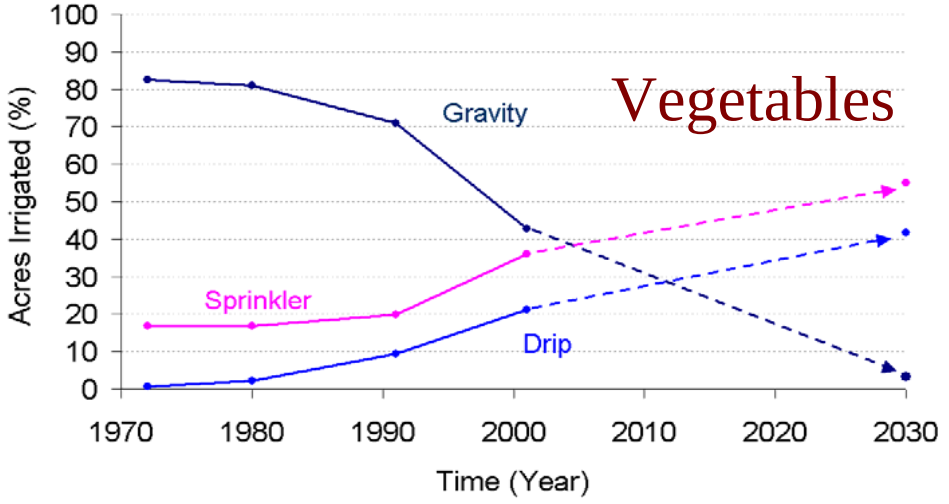
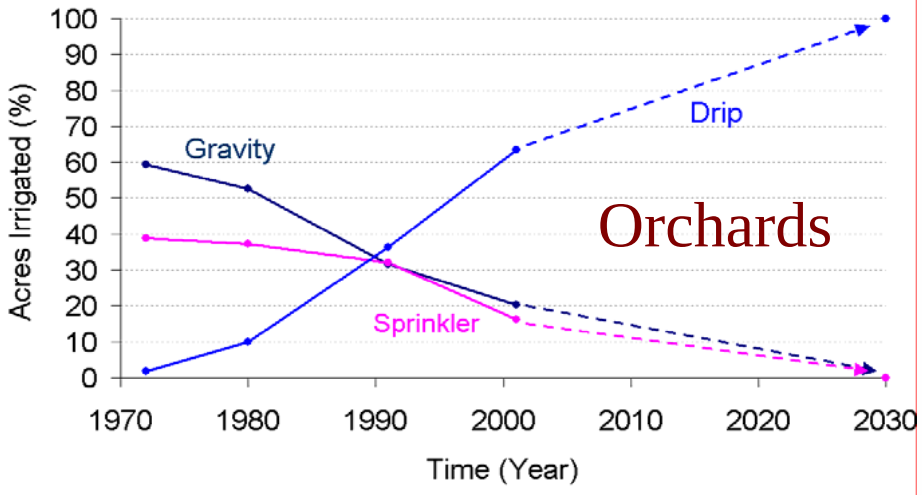
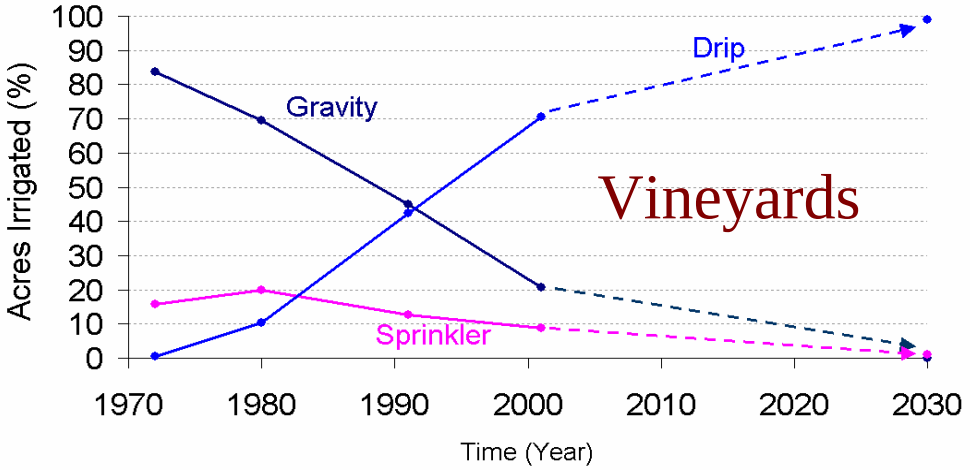
Percent of Irrigated Land by Irrigation Method and Crop Type

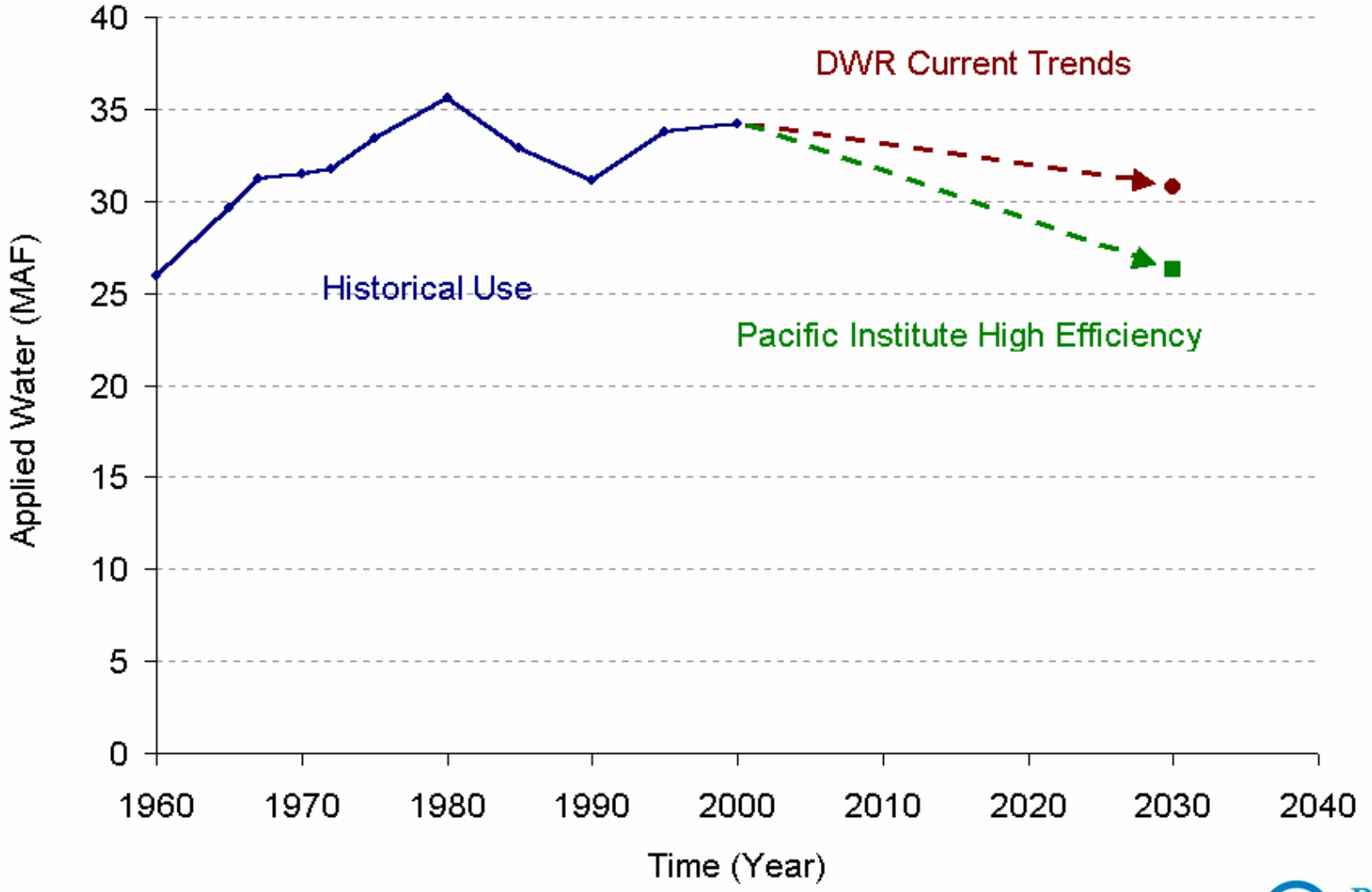








Actual and Projected California Agricultural Water Use



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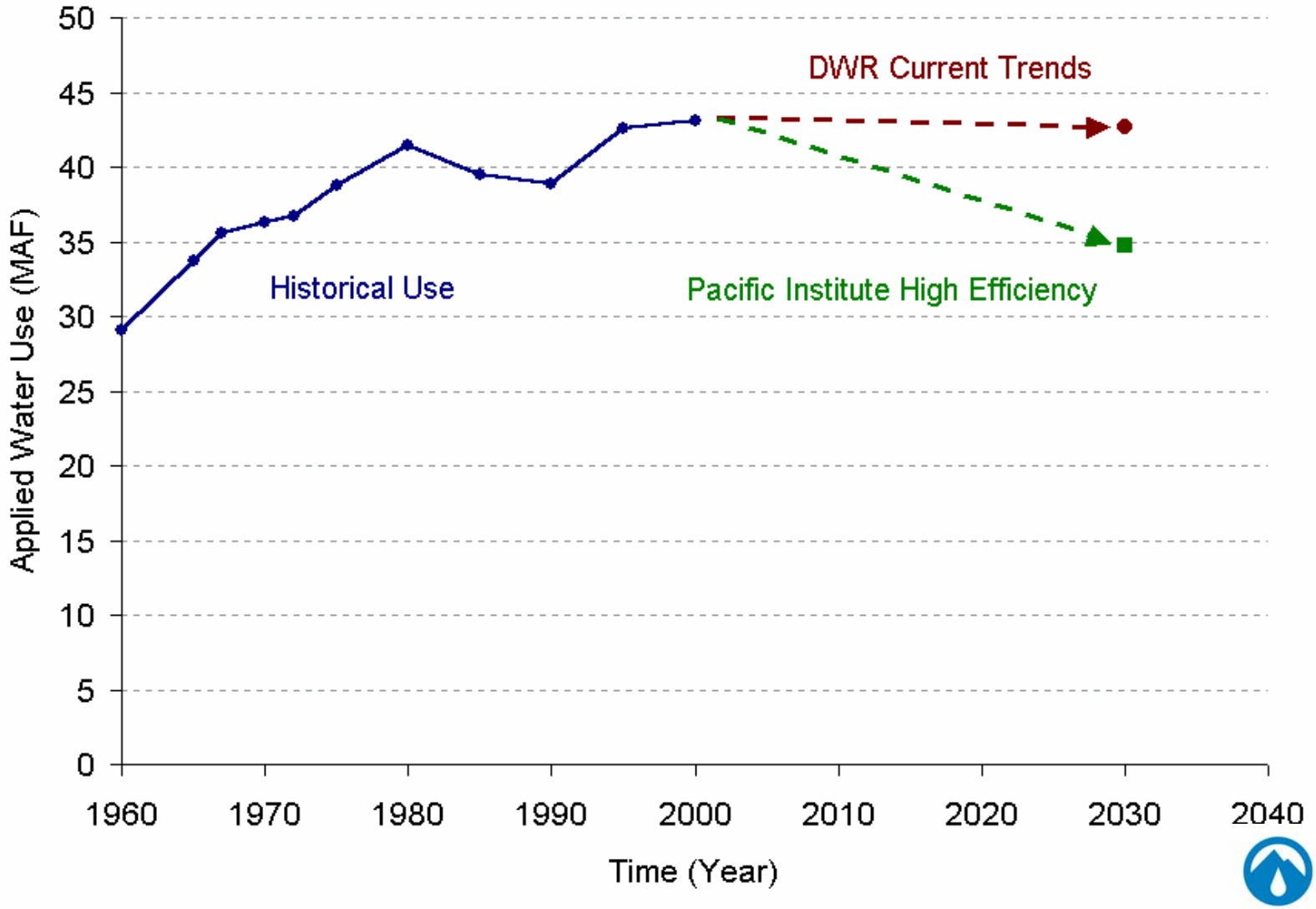
Total California Water Use: Current Trends and High Efficiency Scenarios



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Some additional thoughts; next steps; questions:

- Yields, agricultural productivity, water use
- New technology
- Regional differences
- Groundwater overdraft; conjunctive use
- Reclaimed/recycled water
- Consumptive vs. non-consumptive uses
- Climate change

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Conclusions

- Growth in water demand is **not** inevitable.
- A High Efficiency future can be projected, with no new technologies.
- The Pacific Institute High Efficiency scenario reduces total 2030 California water use by 20%:
  - With a healthy urban economy,
  - With a healthy agricultural sector.

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Conclusions

- Reaching the Pacific Institute High Efficiency future is possible, but will require serious effort on the part of California policy makers, farmers, water managers, corporations, and the public.
- [We believe] such a future is preferable to a Current Trends scenario.
- The sooner steps toward implementing efficiency improvements are taken, the easier the transition to an efficient future will be.

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